David Oberhettinger JPL Office of the Chief Engineer August 2013

JPL seeks to maintain its in-house capabilities by managing the design and implementation of spacecraft and instrument development projects. However, some spaceflight missions that employ relatively well-established technologies are subcontracted to major system contractors, and certain subsystems within flight systems that are built in-house may also be contracted.

Major subcontracts let by JPL usually incorporate an Exhibit II that lists applicable JPL and external requirements documents for which subcontractor compliance is mandatory. (Exhibit II may also include a list of "reference" documents that are not mandatory.) The JPL-external (i.e., "government") requirements document lists called out in subcontracts for several recent major JPL projects are provided below as examples.

InSight

Contract No. 1466672, Exhibit II (Applicable Documents List*: "Government and Other Organization Documents"), 12/23/12 (Lockheed Martin Corporation for InSight Phase B – Formulation System Definition and Preliminary Design)

- ANSI/EIA-748-B, Rev B, June 2007, Earned Value Management Systems
- CCSDS 211.0-B-4, Latest Revision, Proximity-1 Space Link Protocol Data Link Layer
- CCSDS 211.1-B-3, Latest Revision, Proximity-1 Space Link Protocol Physical Laver
- CCSDS 211.2-B-1, Latest Revision, Space Link Protocol Coding and Synchronization Sub-layer
- NPR 8020.12, Rev C, Planetary Protection Provisions for Robotic Extraterrestrial Missions
- NPR 8621.1B, Rev B, May 23, 2006, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
- NPR 9501.2D, Feb 16, 2006, Contractor Financial Management Reporting
- NASA 7120.5, Rev D, Feb, 2010, NASA Space Flight Program and Project Management Handbook

- NASA-STD-8739.1 through 8739.5, Latest Revisions, NASA Technical Standards for Flight Hardware Workmanship
- NASA-STD-8719.24, Latest Revision, NASA Expendable Launch Vehicle Payload Safety Requirements
 - * "The following [preceding] versions are the only ones applicable to this Subcontract. The subcontractor is required to comply with these documents or to justify any instances of noncompliance."

Juno

Contract No. 1278766, Exhibit II (Applicable Documents List*: "Government Documents"), 1/25/10 (Lockheed Martin Corporation for Juno Spacecraft Phase B/C/D)

- AFSPCMAN 91-701, June 1, 2005, Launch Safety Program Policy
- NASA GSFC EEE-INST-002, May 2003, Instructions for EEE Parts Selection, Screening, Qualification and Derating
- NASA STD 8739.8, Rev 0, July 28, 2004, Standard for Software Assurance
- NPD 9501.3A, Rev. 0. May 4, 2004, NASA EVM Policy
- NPG 2810.1, August 12, 2004, Security of Information Technology, NASA Procedure and Guidelines
- NPG 9501.2D, May 23, 2001, Contractor Financial Management Reporting
- NPD 8020.7F, Feb 19, 1999, Biological Contamination Control for Outbound and Inbound Planetary Spacecraft
- NPR 8020.12C, April 27, 2005, Planetary Protection Provisions for Robotic Extraterrestrial Missions
- NPR 8621.1, Rev B, May 23, 2006, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
- NPR 8705.5, Rev 0, July 12, 2004, Probabilistic Risk Assessment (PRA)
 Procedures for NASA Programs and Projects
- NPR 9501.3, November 24, 2004, NASA EVM Implementation on NASA Contracts

*" The following [preceding] versions are the only ones applicable to this Subcontract. The subcontractor is required to comply with these documents or to justify any instances of noncompliance."

GRAIL

Subcontract No. 1326040, Exhibit II (Applicable Documents List (final)*: "Government Documents"), 12/30/08 (Lockheed Martin Space Systems Company for GRAIL Phase B – Formulation: System Definition and Preliminary Design)

- AFSPCMAN 91-701, June 1, 2005, Launch Safety Program Policy
- NASA GSFC EEE- INST-002, May 2003, Instructions for EEE Parts Selection, Screening, Qualification and Derating
- NASA STD 8719.13, Rev B, July 8, 2004, Software Safety Standard
- NASA STD 8739.8, Rev 0, July 28, 2004, Standard for Software Assurance
- NPG 2810.1, August 12, 2004, Security of Information Technology, NASA Procedure and Guidelines
- ANSI/EIA-748, Rev B. June, 2007, Earned Value Systems
- NPR 8621.1, Rev B May 23, 2006, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
 - * "The following [preceding] versions are the only ones applicable to this Subcontract. The subcontractor is required to comply with these documents or to justify any instances of noncompliance."

MRO

Contract No. 1234906, Exhibit II (Applicable Documents List*: "Government Documents"), 6/10/02 (Lockheed Martin Corporation for Mars Reconnaissance Orbiter (MRO) Formulation Phase)

- CCSDS* 100.0-G-1, December 1987, Telemetry: Summary of Concept and Rationale
- CCSDS 101.0-B-4, May 1999, Telemetry Channel Coding

- CCSDS 102.0-B-4, November 1995, Packet Telemetry
- CCSDS 200.0-G-6, January 1987, Telecommand: Summary of Concept and Rationale
- CCSDS 201.0-B-3, June 2000, Telecommand: Part 1 Channel Service
- CCSDS 202.0-B-2, November 1992, Telecommand: Part 2 Data Routing Service
- CCSDS 202.1-B-1, October 1991, Telecommand: Part 2.1 Command Operation Procedures
- CCSDS 203.0-B-1, January 1987, Telecommand: Part 3 Data Management Service
- EWR-127-1, October 31, 1997, Eastern and Western Range Safety Requirements
- FED-STD 209E, September 11, 1992, Airborne Particulate Cleanliness Classes in Clean Rooms and Clean Zones
- KHB 1710.2D, November 1, 1998, Kennedy Space Center Safety Practices Handbook
- MIL-P-26536E, September 24, 1997, High Purity Hydrazine
- MIL-P-27401D, October 3, 1995, Propellant Pressurizing Agent, Nitrogen
- MIL-P-27407B, , August 25, 1997, Propellant Pressurizing Agent, Helium
- MIL-STD-1576, July 31, 1984, Electroexplosive Subsystem Safety Requirements and Test Methods for Space Systems
- MIL-STD-1686C, October 25, 1995, Electrostatic Discharge Control Program for Protection
- NASA-STD-8719.8, June 1998, Expendable Launch Vehicle Payload Safety Review Process Standard
- NPG 8020.12B, April 16, 1999, NASA Planetary Protection Provisions for Robotic Extraterrestrial Missions
 - * "The specifications and documents listed herein constitute the Applicable Documents List for the Mars Reconnaissance Orbiter Contract. The following

[preceeding] versions are the only ones applicable to this Contract."